EVALUATION AND USE OF AN ONLINE DATA ACQUISITION AND CONTENT PLATFORM FOR DELIVERY OF PHYSIOLOGY PRACTICALS AND TUTORIALS

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BACKGROUND

Blended learning approaches are becoming popular across a wide range of teaching contexts, with educators taking advantage of the ability to incorporate relevant multimedia resources into their teaching, and make courseware available to students outside of the traditional face-to-face classroom setting (Lilje & Peat, 2010). With advances in mobile technology, students increasingly expect that educational content will be delivered electronically. Practical and laboratory classes within Biological and Medical Sciences could benefit from blended delivery, but the technical issues of facilitating data acquisition (relying on specialised hardware) and complex data analysis have limited progress in this area. Recently, the Discipline of Physiology at The University of Sydney introduced a new online data acquisition and content delivery platform, which interfaces easily with a range of biological and clinical equipment.

AIMS

The purpose of this study was twofold: (1) to examine the usage pattern of students during delivery of practical courseware via our system, and (2) to capture evaluation data from students regarding their user experiences, with a view to determining the impact of our new platform on student engagement.

DESIGN AND METHODS

Paper-based content, related to physiology practical and laboratory classes at intermediate level, was converted into electronic modules comprising pre-practical, practical and post-practical sessions that could be accessed at home or on-campus. During module development, a key focus was the incorporation of interactive content features (such as hyperlinks, pop-ups and quizzes), multimedia files and evaluation questionnaires into the courseware. Modules were delivered to cohorts of approximately 250 Bachelor of Medical Science students. Access and usage times, as well as responses to open-ended evaluation questions, were captured for each student. We focussed our analysis to-date on a single module, Electrophysiology of the Nerve which included two ‘at home’ (pre- and post-practical) and two ‘face-to-face’ (wet-lab and tutorial) sessions.

RESULTS

The median start date for pre-practicals preceded the median start date for practicals by 2 – 3 days. Approximately 10% of the student cohort accessed the pre-practical and post-practical materials over more than one day. In contrast, the courseware used in the wet-lab-based practical was accessed by 84% of students at a later date with the median number of days between face-to-face start and last access date being 8 days (interquartile range = 63 days). Further analysis indicates that students reviewed these materials during their second face-to-face class or in preparation for a later assessment task. The evaluation questionnaire indicated that approximately 50% of respondents ‘most enjoyed’ the multimedia in the pre-practical courseware while about 20% ‘most enjoyed’ feeling well prepared for their practical session. Approximately 40% of respondents ‘most enjoyed’ the ‘hands-on’ aspects of the practical class.

CONCLUSIONS

Students engaged with online pre-practical material before the practical session enjoying the multimedia features that aided their preparation. Practical content was revisited by students, apparently motivated by face-to-face classroom activities and assessments. The use of this learning platform facilitated a rich 'hands-on' practical experience which rated positively by students. We anticipate similar findings when transitioning other modules from paper-based to blended learning approaches.

REFERENCES

Lilje, O. & Peat, M. (2010) Teaching human biology to large first year classes: an elearning journey for students and staff. *International Journal of Innovation in Science and Mathematics Education, 18*(2), 21-31.

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